```
void append(item x){
    enter(IM);
    if(count == k) //缓冲已满
        wait(notfull, notfull_count, IM);
    B[in] = x;
    in = (in + 1) % k;
    count++; //增加一个产品
    //唤醒等待消费者
    signal(notempty,notempty_count,IM);
    leave(IM);
}
```

```
void take(item &x){
    enter(IM);
    if(count == 0) //缓冲已空
    wait(notempty, notempty_count, IM);
    x = B[out];
    out = (out + 1) % k;
    count--; //减少一个产品
    //唤醒等待生产者
    signal(notfull, notfull_count, IM);
    leave(IM);
}
```

```
process producer_i(){//i=1,...,n
    item x;
    produce(x);
    producer_consumer.append(x)
}
```

```
process consumer_j(){//j=1,...m
    item x;
    producer_consumer.take(x);
    consume(x);
}
```